REMARKS

Applicants respectfully request entry of the foregoing and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow. Claims 1-5 and 61 are pending in the application, claim 1 having been amended above.

Claim Objections and Claim Amendments

Applicants respectfully request entry of the foregoing amendment to claim 1. Claim 1 stand objected to and the above amendment amends claim 1 to follow the Examiner's suggestions.

Withdrawal of the objection is respectfully requested.

Art Rejections - Kono/Ishiko

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kono (U.S. Patent No. 6,399,254 or its equivalent) or Ishiko (U.S. Patent No. 6,190,804 or its equivalent), each in view of Ba Le (U.S. Patent No. 6,673,273) and/or Lan (U.S. Patent No. 6,596,803). For at least the reasons that follow, withdrawal of the rejection is in order.

Claim 1 recites that "the polymer electrolyte exhibits a stability voltage higher than 4 volts." In response thereto, the Examiner has asserted that:

> 16. Therefore, "at least in come" of the references many cases and/or working examples, such a stability voltage ***may*** have been indeed achieved. Accordingly, 103 rejections are thereby sustained.

Official Action mailed 22 February 2010, page 8 (emphasis added).

Respectfully, the Examiner's assertion is not legally adequate basis for maintaining the rejection. The MPEP directly addresses the situation where a certain result or characteristic ***may*** occur or be present in the art. Specifically, the MPEP recites, at MPEP § 2112(IV), that:

> The fact that a certain result or characteristic may occur or be present in the prior art ***is not sufficient*** to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

The MPEP, at MPEP § 2112(IV), further clarifies that the required showing for an Examiner, in making an assertion as the present Examiner has made regarding a polymer electrolyte exhibiting a stability voltage higher than 4 volts, is:

> "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.).

In the present prosecution, the Examiner has not made clear that the missing stability voltage is **necessarily** present in the cited art. Further, the Examiner has not made clear that the claimed stability voltage would be so recognized by persons of ordinary skill in the cited art. The assertion that the claimed stability voltage is within the cited art may **not** be established by probabilities or possibilities. The mere fact that the claimed stability voltage may result from the cited art is **not** sufficient.

Accordingly, applicants respectfully maintain that the Examiner has not presented a *prima facie* case of obviousness. There is simply no teaching in the cited art of a polymer electrolyte that exhibits a stability voltage higher than 4 volts.

Neither Kono nor Ishiko discloses or fairly suggests that the claimed polymer electrolyte exhibits a stability voltage higher than 4 volts. Moreover, the cited secondary references, Ba Le and Lan, do not overcome the deficiencies of the primary references Kono and Ishiko.

Accordingly, a *prima facie* case of obviousness cannot be made over the asserted combination of Kono or Ishiko in view of Ba Le and/or Lan because the asserted combination of references does not disclose or fairly suggest each feature of Claim 1 and does not reflect a proper consideration of all words in Claim 1 including, for example, "the polymer electrolyte exhibits a stability voltage higher than 4 volts."

The rejection under § 103(a) over the asserted combination of references is also improper because the Official Action does not provide evidence sufficient to indicate that one of ordinary skill in the art would have had reason to modify and/or combine the reference teachings to arrive at the claimed polymer electrolyte. The Examiner has asserted that one skilled in the art would have used the filler of Ba Le

and/or Lan with Kono/Ishiko because one skilled in the art "would expect all the embodiments in the same genus (filler) would succeed based on functional equivalence and interchangeability." Official Action mailed 22 February 2010, page 8. However, the mere (alleged) functional equivalence and interchangeability does not make such a modification obvious unless the art or some other evidence suggests a reason for the modification. See, In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Here, Applicants find no reason to combine Kono or Ishiko with Ba Le and/or Lan. In particular, the disclosure of both Kono and Ishiko indicate that the disclosed electrolytes already exhibit high mechanical strength and/or conductivity. (See, Kono, for example, at col. 17, lines 7-12 and Ishiko, for example, at col. 23, lines 60-63.) Thus, one of ordinary skill in the art reading the disclosures of Kono and Ishiko would have had no motivation to look to any other reference to provide information about ways to modify the disclosed electrolytes to provide adequate mechanical strength and/or conductivity. Furthermore, when considering the secondary references Ba Le and Lan, Applicants submit that there are various reasons why one of ordinary skill in the art would not have looked to these references even if one had been looking to modify the electrolytes of Kono and Ishiko. For example, Ba Le is substantially directed to the production of free-standing films, which are significantly different from the solid electrolyte compositions of Kono and Ishiko. In addition, Ba Le specifically discloses the use of various additives such as hydroxyl-functional particles that are particularly desired because they provide an interaction with the polymer, specifically cross-linking with polyisocyanates in the polymer. Again, such interaction or cross-linking with polyisocyanates is something that while important for

the compositions of Ba Le, is a factor that actually teaches away from combining Ba Le with Kono or Ishiko, which do not have polymers with polyisocyanates.

Furthermore, when considering the test data provided in the Tables of Ba Le, one can easily recognize that the data in Table 2 appears to indicate that when such additives are added to the electrolyte composition there is very little effect on conductivity. (See, Ba Le at Table 2, column 27, lines 35-45, which indicates that conductivity (S/cm) remained relatively constant at Alumina/Isocyanate % values between 0 and 15.) Thus, one looking to increase the conductivity of the compositions of Kono and Ishiko would not have been motivated to modify the electrolytes of primary references by incorporating additives that Ba Le discloses to have little or no effect on the conductivity, especially when the disclosed electrolyte compositions of the primary references already exhibit adequate mechanical strength and/or conductivity. Also relevant, is the fact that in Table 3, (column 27, lines 48 to 56) Ba Le appears to indicate that when an alumina additive was provided, a significantly greater variability was recognized in the measured float current (i.e., 2.37 +/- 1.00 with no nanoparticles versus 1.32 +/- 1.03 with 10% alumina). This increased current variability suggests that one of ordinary skill in the art would not have selected the additives of Ba Le (resulting in no appreciable increase in conductivity and increased current variability) to modify the electrolyte compositions of Kono and Ishiko, which were already disclosed to exhibit suitable mechanical strength and/or conductivity. Furthermore, Ba Le discloses polymer electrolytes that include numerous groups, namely, urethane groups, urea groups, thiocarbamate groups, or combinations thereof, that are not present in the electrolyte compositions of Kono or Ishiko. (See, Ba Le, for example, at Abstract and Claim 1.)

With respect to Lan, Applicants submit that Lan is directed to polymer-clay nano composite materials comprising melt-processable matrix polymers and the layered clay material having a low quartz content, which Applicants find to be unrelated to the field of electrolyte compositions. That is, Lan appears to be substantially directed to an entirely unrelated, non-analogous technical field that no person of ordinary skill in the art would have reasonably looked to address issues with the strength and/or conductivity of electrolyte compositions like those disclosed in Kono or Ishiko. Thus, Applicants submit that it appears entirely improper to even consider Lan as a reasonable prior art reference to be combined with Kono or Ishiko. Indeed for purposes of evaluating the obviousness of claimed subject matter, one must make certain that a particular reference relied upon constitutes "analogous art." (See, for example, In re Clay, 966 F.2d 656, 658-59 (Fed. Cir. 1992).)

Accordingly, Applicants respectfully submit that the Official Action has ignored the varying teachings of the cited references and the failure of the references or any other evidence in the record to provide any suggestion that one should, or even could, select and combine specific features of the different references to arrive at the claimed polymer electrolyte having a stability voltage higher than 4 volts. Applicants submit that by proceeding in this manner, the Official Action has failed to consider the claimed subject matter as a whole, as required under 35 U.S.C. § 103(a). Applicants respectfully submit that there is no basis, absent the impermissible use of hindsight based on Applicants' disclosure, for combining the references in the manner suggested in the Official Action. There is no reason one skilled in the art would have to modify the disclosed electrolyte compositions and the Official Action provides no reason or any other evidence that would have led one of ordinary skill in

the art at the time the claimed subject matter was developed to study the electrolyte compositions of Kono or Ishiko and modify them to include specific features of Ba Le and/or Lan.

Moreover, Applicants submit that given the significant differences in the disclosed compositions and the fact that the compositions of the primary references were disclosed to already exhibit suitable properties, there would have been no reason to look to the different components of Ba Le and/or Lan. That is, it appears to Applicants that the disclosure of Ba Le (that the additives therein do not lead to an improvement in conductivity and instead provide undesirable characteristics (current variability)) and the completely non-analogous disclosure of Lan, would have actually given reason for one of ordinary skill **not** to combine the features of the cited references. That is, the cited references actually appear to teach away from making the asserted combination to arrive at the claimed polymer electrolyte. The only reason for ignoring these teachings is derived from the disclosure of the present application, which discloses the desirability of the recited combination of features.

For at least the above reasons, Claim 1 is patentable over the asserted combination of Kono or Ishiko in view of Ba Le and/or Lan. Claims 2-5 and 61 depend, either directly or indirectly, from Claim 1 and are, therefore, also patentable over the asserted combination of references for at least the reasons that Claim 1 is patentable. Reconsideration and withdrawal of the § 103(a) rejection over the combination of Kono or Ishiko in view of Ba Le and/or Lan are respectfully requested.

Art Rejections - Kerr

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kerr (U.S. Patent No. 7,101,643) in view of Ba Le and/or Lan.

As discussed above, claim 1 recites that "the polymer electrolyte exhibits a stability voltage higher than 4 volts." In response thereto, the Examiner has asserted that:

> 16. Therefore, "at least in come" of the references many cases and/or working examples, such a stability voltage ***may*** have been indeed achieved. Accordingly, 103 rejections are thereby sustained.

Official Action mailed 22 February 2010, page 8 (emphasis added).

Respectfully, the Examiner's assertion is not legally adequate basis for maintaining a rejection. MPEP § 2112(IV).

In the present prosecution, the Examiner has not made clear that the missing stability voltage is **necessarily** present in the cited art. Further, the Examiner has not made clear that the claimed stability voltage would be so recognized by persons of ordinary skill in the cited art. The assertion that the claimed stability voltage is within the cited art may **not** be established by probabilities or possibilities. The mere fact that the claimed stability voltage may result from the cited art is **not** sufficient.

Accordingly, applicants respectfully maintain that the Examiner has not presented a *prima facie* case of obviousness. There is simply not teaching in the cited art of a polymer electrolyte that exhibits a stability voltage higher than 4 volts.

Kerr, like Kono and Ishiko, already discloses that the described polymer electrolytes exhibit suitable mechanical strength. (See Kerr, for example, at Abstract.) Thus, there would have been no reason to look to the teachings of Ba Le

and/or Lan to address the mechanical strength of the polymer electrolytes of Kerr. Furthermore, as explained in detail above, Ba Le discloses that the described additives therein have no appreciable positive effect on conductivity and appear to lead to undesirable current variability. Also, it is clear to Applicants that the polymer electrolyte of Ba Le includes specific groups, namely, urethane groups, urea groups, thiocarbamate groups, or combinations thereof. (See, Ba Le, for example, at Abstract and Claim 1.) However, these groups are not present in the electrolyte compositions of Kerr. Additionally, as explained above, Applicants believe that Lan (directed to polymer-clay nano composite materials) would not have been considered by any reasonable person of ordinary skill in the art because the subject matter of Lan is not analogous to the subject matter of Kerr (just as it is not analogous to the subject matter of Kono or Ishiko).

The § 103(a) rejection over Kerr in view of Ba Le and/or Lan should be withdrawn because the Official Action fails to provide a sufficient reason one skilled in the art would have to modify and/or combine the reference teachings to arrive at the claimed electrolyte composition. Here, Applicants again find no reason to combine Kerr with Ba Le and/or Lan and that to make such a combination ignores the varying fields of the cited references. Neither the references themselves nor any other evidence in the record provide any suggestion that one should, or even could, select and combine specific features of the references to arrive at the claimed polymer electrolyte. That is, Applicants respectfully submit that there is no basis, absent the impermissible use of hindsight based on Applicants' disclosure, for combining Kerr with specific teachings of Ba Le and/or Lan, as suggested in the Official Action.

For at least the above reasons, Claim 1 is patentable over the asserted combination of Kerr in view of Ba Le and/or Lan. Claims 2-4 and 61 depend, either directly or indirectly, from Claim 1 and are, therefore, also patentable over the asserted combination of references for at least the reasons that Claim 1 is patentable. Reconsideration and withdrawal of the § 103(a) rejection over the combination of Kerr, Ba Le and Lan are respectfully requested.

Art Rejections - Kerr + Kono/Ishiko

Finally, Claim 5 stands rejected under 35 U.S.C. § 103(a) as being obvious over Kerr in view of Ba Le and/or Lan and further in view of Kono or Ishiko. For at least the reasons that follow, withdrawal of the rejection is in order.

For all of the reasons explained in detail above, the § 103 rejection over Kerr in view of Ba Le and/or Lan and further in view of Kono or Ishiko is improper and should be withdrawn. Specifically, as explained above, the asserted combination of references does not disclose or fairly suggest all of the features in Claim 1 and does not reflect proper consideration of all the words in Claim 1. For example, none of the references, alone or in combination, discloses or fairly suggests a polymer electrolyte comprising at least one four-branch polymer and at least one component selected from the group consisting of SiO_2, Al_2O_3, nano TiO_2 non-coated and nano TiO_2 coated with specified organic materials, which exhibits a stability voltage higher than 4 volts.

Furthermore, each of the references Kerr, Kono and Ishiko disclose electrolyte compositions that are described to already exhibit suitable properties (i.e., conductivity and/or mechanical strength.) Thus, the purported reason provided in

the Official Action for looking to Ba Le and/or Lan does not exist. Moreover, the secondary references would not have been considered to by one of ordinary skill in the art for combination with the primary references. For example, Ba Le discloses additives to be used only with polymers including specific groups that are not present in the polymer electrolyte compositions of Kerr, Kono or Ishiko; that provide no appreciable positive effect on conductivity; and, instead appear to provide negative effects on other properties (current variability). Furthermore, the disclosure of Lan is unrelated to the field of electrolytes and would not have been considered by persons of ordinary skill in the art looking to modify the strength and/or conductivity of the compositions of Kerr, Ishiko and/or Kono.

For at least these reasons Claim 1 is patentable over the combination of Kerr in view of Ba Le and/or Lan and further in view of Kono or Ishiko. Claim 5, which depends on Claim 1, necessarily includes all the features of Claim 1. Accordingly, Claim 5 is also patentable over the asserted combination of references for at least the reasons that Claim 1 is patentable. Reconsideration and withdrawal of the rejection of Claim 5 over Kerr in view of Ba Le and/or Lan and further in view of Kono or Ishiko are respectfully requested.

Conclusion

From the foregoing, Applicants earnestly solicit further and favorable action in the form of a Notice of Allowance.

If there are any questions concerning this paper or the application in general, Applicants invite the Examiner to telephone the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

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